

DIFFERENTIAL RELIANCE ON THE CAUSAL CORE CONCEPT IN THE DOMAIN OF PHYSICS AND BIOLOGY: A REVISED STUDY

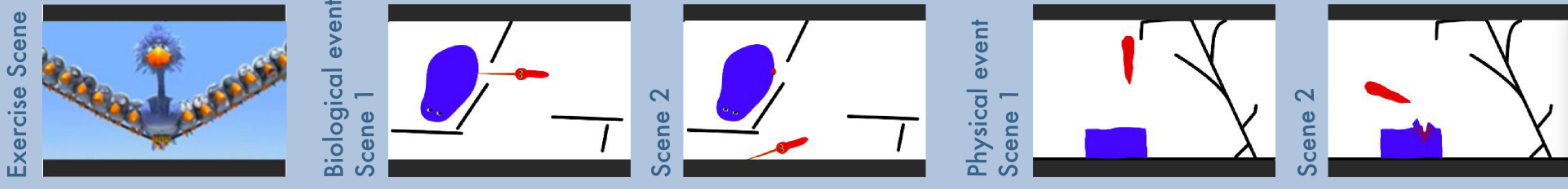
BACKGROUND AND RATIONALE

- Children develop core concepts very early.
 - Despite considerable education, adults do not completely abandon those naïve concepts.
 - Dispositional theories of causality model causation as an antagonistic interaction between agent- and patient-objects (living as well as inert) with intrinsic dispositions¹:
 - Ontological distinction between “agents” and “patients”
 - Asymmetric attribution of agency²
 - Impact of forces asymmetrically perceived³
 - Language expresses causal asymmetry.⁴
 - Adhering to ideas of dispositional causality effects:
 - Implicit ascription of specific features to the interacting objects
 - The view that properties are transferred from the agent to the patient³
 - This influences the probability that an event is interpreted as including a causal relation.
- Do adults and children cross-domainally adopt an agent-patient relationship when judging a collision event with two inert objects as well as a sting event with two living objects?**
- We hypothesize that:
- Interactions of inert as well as living objects are interpreted as involving causal dispositions (i.e. goal-directed agent-like causes and interaction-roles).
 - Individuals will judge statements as true or false according to their naïve concept.
 - Adults will implicitly give similar naïve answers as children will explicitly.

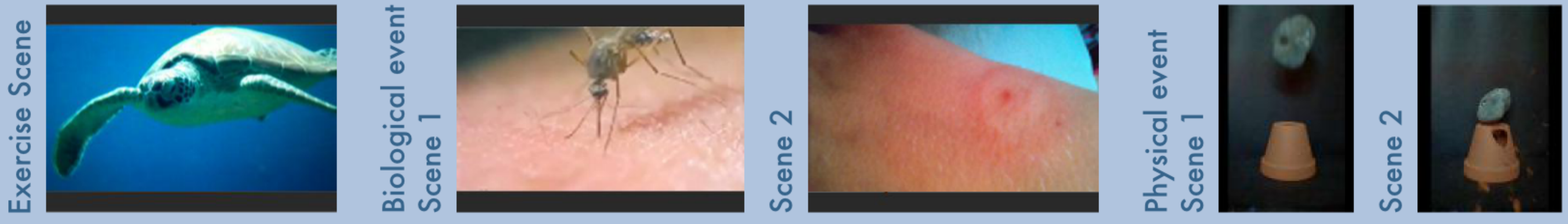
METHODS



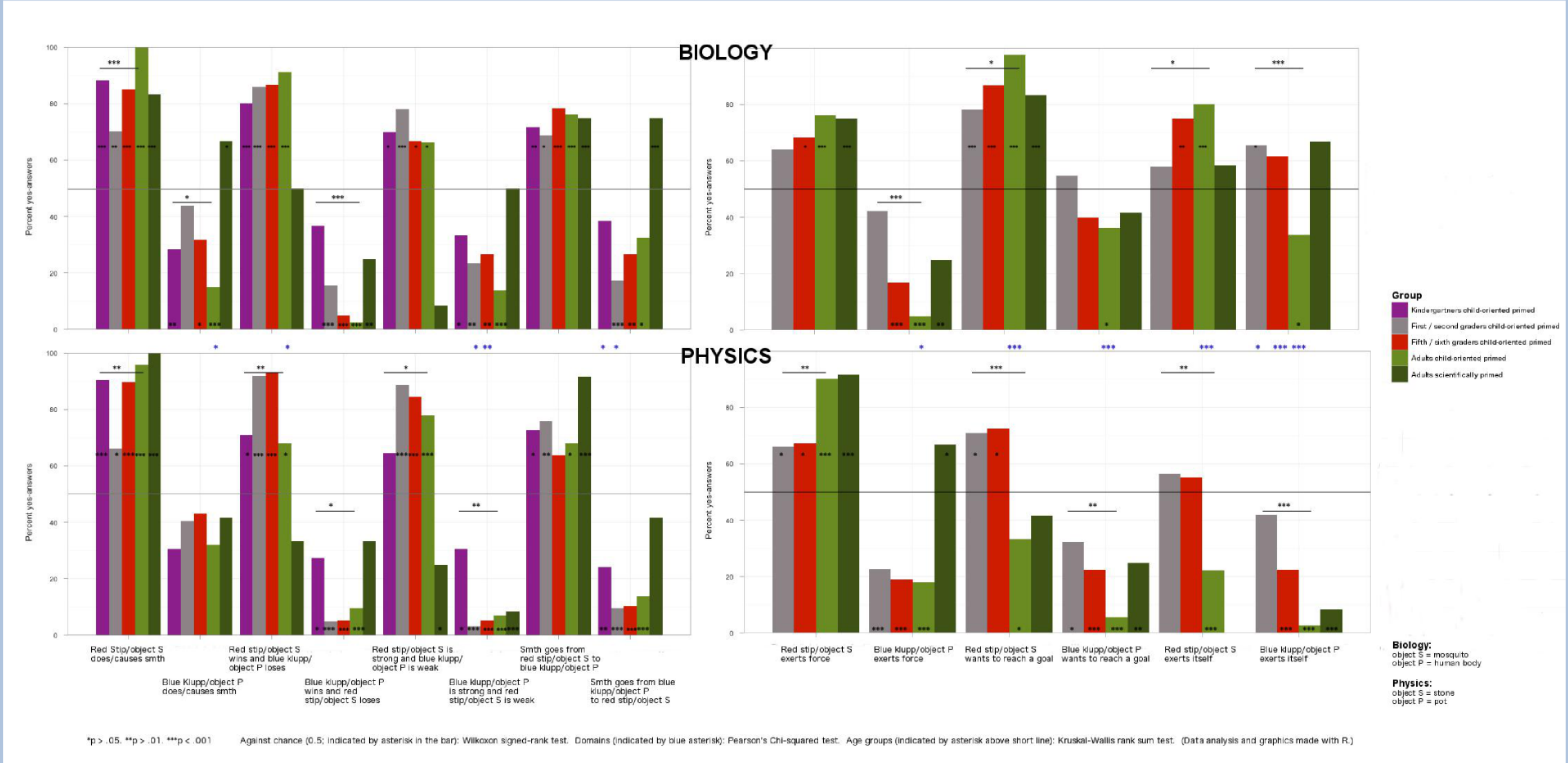
- A sample of 61 kindergartners (age $M = 5.9$, $SD = .44$), 63 first / second graders (age $M = 7.32$, $SD = .47$), 59 fifth / sixth graders (age $M = 11.56$, $SD = .73$) and 88 lay adults (age $M = 25.6$, $SD = 8.84$) were tested.
- Participants watched a biological or a physical event.
- Then, they heard 14 sentence pairs and judged them as right or wrong.
- Adults additionally experienced time pressure.



- Assuming that the child-oriented setting primes the naïve thinking, a part of the adults conducted the study in a *scientific manner*.



RESULTS



DISCUSSION

Across the domains, participants categorised the two objects into agent and patient roles with corresponding attributes.

Under time pressure and considering the setting, adults judged the statements similar to children - suggesting that naïve concepts are never fully abandoned.

Findings indicate that children, as well as adults under time pressure and in a child-oriented setting, use dispositional causal concepts when interpreting a physical collision event and a biological sting event. Moreover, the tendency to adopt a dispositional stance increases with age, particularly noticeable in the biological domain.